

IX.—*A List of the scarcer amongst the Lichens which are found in the neighbourhood of Oswestry and Ludlow, with occasional observations upon some of them.* By the Rev. T. SALWEY\*.

As a study of the Lichens is confessedly one of the greatest difficulties the botanist has to contend with, and as Sowerby's 'English Botany' and the 'Lichenographia Britannica' (so far as this last extends), the principal works in our language which give any detailed description of them, are in the hands of few, I have thought that observations upon some of the least common of such Lichens as are found in this part of England may be acceptable to those who are entering upon the study of them.

Having already made some remarks upon the Welsh Lichens in the 'Annals and Magazine of Nat. History,' vol. xiii. pp. 25, 260, I have enumerated in the present list such only as I have met with out of the Principality, and these more particularly such as are found in the neighbourhood of Oswestry and Ludlow, so that the following may be regarded almost as a list amongst the scarcer of the Lichens of Shropshire, the great majority of the habitats being such as are confined to this county. The descriptions of the several species in the 'English Flora' are much too concise to enable the student, without occasional help from some experienced botanist, to make them out. Dr. Taylor in the 'Flora Hibernica' has given much more ample details of such as he describes, and has added several new species, some of which are still to be discovered on this side of the Channel, but his work necessarily embraces such only as are found in Ireland. It is much to be regretted that we have as yet no monograph of the Lichens, and till some one competent to undertake so arduous a task shall have supplied this desideratum, any occasional observations upon them may perhaps meet with acceptance at the hands of those who are desirous of studying this branch of botany.

It is only as a help to such, and not under the presumption that I am capable of throwing much light upon the subject, that I have ventured to send to the Botanical Society of Edinburgh the following list of Lichens, with such observations upon some of them as a long acquaintance with, rather than an accurate knowledge of them, has led me to form. If my observations should be the means of removing any difficulties in the way of a single inquirer into this branch of botany, my end will be fully answered.

Oswestry, March 28, 1845.

*Bæomyces anomalus.* Craigforda and Pentregaer in the parish of Oswestry.

\* Read before the Botanical Society of Edinburgh, June 12, 1845.

I retain this name in deference to the authority of my friend Dr. Taylor, though I confess I am more inclined to consider it as a *Lecidea*. Whatever generic name it may properly claim, it certainly ought to retain the specific one of *anomala*; for a plant which has been described by Acharius as a *Lecanora*, by Hooker as a *Verrucaria*, and by Taylor as a *Bæomyces*, evidently occupies so doubtful a place, that its position can scarcely be considered as thoroughly established. It is not an uncommon lichen on the Cambrian rocks. The rock at Craigforda indeed on which it grows is an indurated sandstone; but at Pentregaer it grows on the rocks of the Silurian system. It varies very much in the colour of the thallus from a dull or yellowish white to a smoky brown. The apothecia are immersed in the crust, and do not appear to me to possess a sufficient stipes to enable it to rank with *Bæomyces*.

*Calicium stigonellum* (*sessile*, Persoon, M. and N. 858). Upon old oaks at Llanforda, scarce, but profusely upon a single oak in Middleton-lane, just beyond the Llys House.

This plant and the following one, the *turbinatum*, have been frequently confounded, though no two plants can be more distinct. The present is a plant of unfrequent occurrence, growing either upon the crust of the *Porina pertusa*, or else upon the rugged bark of old oaks. On the oak-tree in Middleton-lane it is much more developed than when growing on the *Porina pertusa*. The apothecia are perfectly sessile, and when cut exhibit rather a thick, white layer immediately underneath the disc, connected at the edges with a lower one of much less thickness, and containing between these two a black powdery mass. The disc is covered with a gray bloom, and has a border of a darker colour, giving it the appearance of a *Lecidea*.

*C. turbinatum* (*gelatinatus*, With.; *Sphæria sphincterica*, Sow. Fung. 286, M. and N. 366). This is a very common plant, growing on the crust of the *Porina pertusa*. The apothecia in this are polished and pear-shaped, with a depression at the top and a little dot in the centre of the depression, giving it the appearance of a *Verrucaria* or a *Sphæria*. I had suspected that it ought to be removed again to the genus *Sphæria* where Sowerby had placed it, but upon requesting my friend Mr. Berkeley to examine it, he confirms the authority of Fries in still retaining it as a *Calicium*.

*C. ferrugineum*. Old park pales at the Moor Park and Hay Park near Ludlow; not of very common occurrence.

*C. chrysocephalum*. Park pales at Downton Castle in Herefordshire, near the bridge above the Hay Mill. This is one of the scarcest of this genus: the bright vivid hue of the crust will not fail however to arrest the practised eye of the lichenist, should he come within its reach, so that he will not be likely to overlook it.

*C. phæocephalum*. Pales of Hay Park near Ludlow. This is a very distinct species, and cannot possibly be confounded with any other. The "tumid, crowded and leaf-like appearance of the crust," so well described in the 'Lichenographia Britannica,' gives it indeed very much the appearance of a minute *Bæomyces*, or a diminutive

resemblance of *Cenomyce cespititia*. The pildia however are truly those of a *Calicium*; and the dull brownish green hue of the capitulum, surrounded, as it frequently is, by the bright yellow ring of the sporules bursting from the edge of the disc, give the plant a very distinct and peculiar appearance. It is of very unfrequent occurrence.

*Calicium sphaerocephalum*. Probably common upon the old decaying timber of barns, &c., but overlooked from its minuteness, the crust appearing to be scarcely more than a stain upon the wood of a bluish gray colour, in which the young apothecia before they are fully developed appear to the naked eye like immersed black dots.

*C. furfuraceum*. Dry banks about Oswestry; on the bank between the pool and the common at the Lodge near Ludlow.

This is not a plant of general occurrence. The bright pale lemon colour of the whole plant readily points it out. It is quite dissimilar in habit and place of growth from the rest of the *Calicia*, and has been removed by Dr. Taylor to *Bæomyces*.

*Opegrapha saxatilis*. Sandstone rocks, Craigforda.

*O. dendritica*. On the smooth bark of trees, but not common.

*Verrucaria gemmifera*. Craigforda.

This plant arrests the eye by presenting the appearance of a verdigris or bluish gray stain upon the rock: the apothecia are very minute.

*V. gemmata*. Upon the bark of old ash-trees, Pentregaer, &c.

This is the largest of the *Verrucariae*, and not uncommon upon the bark of old ash-trees, where the size of the apothecia contrasting with the white ground of the bark, give it a conspicuous appearance.

*V. rupestris*. Common upon the limestone rocks at Oswestry, upon the Moelydd, and at Pentregaer.

*V. immersa*. In the same habitats as the former and at Craigforda, but less common. The smaller size both of the apothecia and of the cavities in which they are immersed, its *gray* crust as opposed to the *white* one of *rupestris*, and a certain peculiar *neatness* in the appearance of the whole plant, distinguish it from the former.

*V. levata*. Upon stones in the Morda Brook under Craigforda.

*V. epipolæa*. Limestone rocks on the Moelydd and at Pentregaer.

This is a very handsome and conspicuous species; the crust is often suffused with a pale rose-colour, which, contrasting with the bluish colour of the apothecia, gives this plant a very beautiful appearance.

*V. acrotella*. Craig-y-Rhu: scarce.

*V. epigæa*. Hay Coppice, Herefordshire. Perhaps not uncommon in a barren state, when it may be overlooked as a young state of some *Conferva* or *Vaucheria*.

*V. Hookeri*. Mynydd-y-Myfyr: very scarce.

*Endocarpon miniatum*. Limestone rocks, Oswestry; Wickliff rocks, Ludlow, and Downton Castle.

*E. Hedwigii*. On the top of the wall opposite the house at the Moor Park near Ludlow, and other similar situations.

*E. late-virens*. In fruit on Mynydd-y-Myfyr in the parish of

Oswestry. Common on the Welsh mountains, but scarce with us. The apothecia are immersed, but protrude in an oblique direction from the thallus; small, and of a dull opaque black colour.

*Endocarpon rufo-virescens*. Craigforda and Mynydd-y-Myfyr. Common in Wales, but of more rare occurrence with us.

*Lepraria chlorina*. Craig-y-Rhu.

*L. Iolithus*. Craig-y-Rhu.

*Variolaria globulifera*. Upon old ash-trees at Craig-y-Rhu.

*V. conspurcata*. Limestone rocks, Pentregaer.

*Lecidea fusco-atra*. Craigforda and Pentregaer. This minute *Lecidea*, with its finely radiating thallus, presents a beautiful appearance on the surface of quartz or chert.

*L. fumosa*. Moelydd and Craig-y-Rhu. The crust forms brown smoky patches upon the rocks. It is probably not uncommon.

*L. petræa*. In great abundance and perfection upon the mudstones of the Silurian system about Ludlow, and common also about Oswestry. My reason for noticing this common lichen is because there is some resemblance to the naked eye between this and *lapicida*, and experienced botanists have I believe proposed to unite them; but the crust of *lapicida* is smoother, more polished, harder, and more cream-coloured. The apothecia too are more sunk in the crust in *lapicida*. In *petræa* they are often surrounded by a whitish border formed of the crust, giving the plant the appearance of a *Lecanora*; in a more advanced stage they have an urceolate appearance, the border being raised and inflexed; and the under side of this being white, the plant still retains somewhat of the appearance of a *Lecanora*. The concentric arrangement of the apothecia is usually very strongly marked, so that the name of Davies and Dickson (*concentrica*) ought I think to be restored to it instead of that of *petræa*, to which it has no more title than many others which are equally confined to rocks, and which, in fact, expresses nothing peculiar to the plant itself. The *petræa* grows upon soft rocks. I only know *lapicida* as growing upon the hard slaty rocks of the Cambrian system, where it is by no means a common lichen.

*L. prominula*. A minute and obscure lichen, varying however much in the size of its apothecia. The var. *lygæa* of Ach. has been sent to me by Mr. Leighton from Haughmond Hill.

*L. anomala*. Acharius characterizes this species as "polymorpha, nam apothecia, quoad formam et colorem eximiè variant;" we have what I believe to be one of the varieties of this polymorphous species growing upon some elm-trees at the Lodge near Ludlow. The crust is very thin, smooth, polished, and of a pale whitish colour. The apothecia conspicuous, variable in size, and of a brownish black colour.

*L. elæochroma* and *parasema*. These lichens have been well distinguished in the work of Mougeot and Nestler, 'Stirpes Cryptogamæ Vogeso-Rheuanæ,' and by Dr. Taylor in the 'Fl. Hib.' The crust of *parasema* is frequently almost white; the apothecia scattered irregularly about the disc, and larger than in *elæochroma*. In this last the crust is always greenish and granulated, the apothecia

smaller, and usually crowded together in a circular group in the centre of the thallus. The *elæochroma* is by far the most common species; the *parasema* indeed is of rather rare occurrence.

*Lecidea dubia*. Upon barns at Overton and Maryknowle, and at Little Leinthall near Ludlow. It is not a common lichen with us.

*L. Griffithsii*. Upon old oaks in the Hay Coppice, Herefordshire. We have what is perhaps a variety of this growing upon the scales of some old spruce fir-trees at the Lodge near Ludlow. The apothecia are larger and more convex than in the usual state of *Griffithsii*, and more variable in colour, varying from a pale fawn to a deep claret colour. Mr. Borrer, to whom I sent a specimen, said it much resembled one he had received from Acharius as his *Lecanora hypopta*.

*L. aromatica*. Upon the mortar in an old wall in Llanforda-lane : scarce.

This plant has been considered as a state of *caruleo-nigricans* or *vesicularis*. If it be so, I see no reason why it should not grow to the same size, and assume the same habit in every respect as *vesicularis*. The *vesicularis* grows with us on limestone; the *aromatica* on mortar : what should prevent the latter, if the same plant as the former, from attaining the same size as the former, seeing they both have a calcareous base ?

*L. sanguinaria*. Upon the pales of the Hay Park, Herefordshire, and upon the pales below the Ambry at Croft Castle, Herefordshire.

*L. muscorum*. Pentregaer.

*L. scabrosa*. An obscure lichen, and probably not uncommon. Upon a wall in Weston-lane, Oswestry, and at Craig-y-Rhu.

*L. Lightfootii*. Birch-trees, Llanforda : scarce.

*L. incompta*. Upon an old wych-elm at the Hayes near Oswestry, and upon an old maple-tree upon the High Vawr. An inconspicuous lichen and of rare occurrence.

*L. quernea*. Old oaks, Oswestry, and at the Lodge near Ludlow, and in the Hay Coppice. A very handsome lichen when in perfection.

*L. æruginosa*. Old gates and posts, Oswestry : not common.

*L. quadricolor*. Craigforda and Mynydd-y-Myfyr. These and the Cynr Moelfre in the adjoining parish of Llansilin are the only habitats I have for this plant.

*L. Pineti*. Wood above the house at Llanforda, on the scales of fir-trees. This is a very rare lichen with us, the habitat here given being the only one I know. It grows principally on the base of the stem just above the roots. The pale yellow apothecia present to the naked eye nothing but minute specks on the thin green crust of the thallus.

*L. cornea*. Upon oak-trees in the Hay Coppice, Herefordshire, and about the Lodge near Ludlow.

*L. marmorea*. This occurs with us upon the roots of old thorn-trees growing in the crevices of the rock, as well as upon the rock itself. It seems to be almost wholly without crust, the shields thus presenting the appearance of minute *Pezizæ*. Fries, who makes this

plant his *Gyalecta cupularis*, makes the *Gyalecta Wahlenbergiana* of Ach. 'Syn.' his var.  $\beta$ . of this plant. Now, if what I regard as the *Gyalecta Wahlenbergiana* of Ach. be indeed that plant, I cannot but confess my surprise at its being united with *marmorea*. The two plants appear to me "toto cœlo distinctæ." I first discovered the *Gyalecta Wahlenbergiana* about twenty years ago upon the rocks at Craig-y-Rhu in this parish, but the habitat there is now lost. I did not find it again till the year 1840 upon the Wickliff Rocks at Ludlow, where it still grows, investing decayed mosses. This plant forms a continuous crust of a pale yellowish colour, and of a substance somewhat between leprous and waxy. The apothecia, which are numerous, appear to be of exactly the same substance as the crust, and are of an urceolate form, having the disc either of a pale yellow, or in some instances of a diluted greenish colour. The border, which is inflexed, is granulated. The apothecia are far more fragile and tender than in *marmorea*. The plant resembles much, upon a very minute scale, the beginning of a honeycomb. Wahlenberg's description of his plant, "substantia mollis et subgelatinosa," and its habitat, "in locis obscuris supra muscos putridos," agree accurately with our plant, which indeed I can have no doubt is the same as his, and I cannot reconcile myself to its being united with *marmorea*.

*Lecidea lutea*. Upon a single tree at Llanforda, now cut down.

*L. polytropa*. Mynydd-y-Myfyr. This is the only English habitat I at present know for this plant.

*L. lucida*. Upon sandstone walls about Oswestry, in fruit, but seldom found in this state.

*L. desertorum*. Dr. Taylor, to whom I sent this plant, seems inclined to refer it to *caruleo-nigricans*. Mr. Borrer regards it as the *desertorum* of Acharius. I cannot but regard it as distinct both from *caruleo-nigricans* and from *Lecidea coronata*, and also from *quadricolor*, with which Ach. unites it. It grows upon the limestone rocks here with *caruleo-nigricans*, but is much scarcer. It differs from this in having the crust more continuous, and in the scales of this being far smaller and flatter, and having to the naked eye somewhat of a filmy appearance. The shields also have not the bluish colour of those of *caruleo-nigricans*, nor are they smooth like these, but are of a deep black colour, and appear rough under the lens. In *quadricolor* again the shields are always some shade either of brown, yellow, or red, and the crust not scaly, but granulated. The *quadricolor* too grows upon the earth in heathy situations; the *desertorum* upon limestone. In *coronata* again the crust is a congeries of minute bluish granules which form also the border of the apothecia, which are of a reddish brown colour. Fries makes *quadricolor* and *desertorum* the varieties  $\alpha$ . and  $\beta$ . of his *Lecidea decolorans*.

*L. canescens*. In fruit upon an old oak at Whittington: common upon old oaks, but usually barren.

*L. caruleo-nigricans*. Limestone rocks at Pentregaer, Craig-y-Rhu, and on the Moelydd.

*L. scalaris*. Pales of the Hay Park near Ludlow: scarce.

*Lecanora periclea*. This is an obscure and by no means a common lichen. It grows with us occasionally upon old oak- and ash-trees; upon an ash-tree in a field south of Treflach-lane, about a quarter of a mile from Croeswilin.

*L. squamulosa*. On the Moelydd, and upon the rocks at Pentre-gaer.

*L. glaucocarpa*. Craig-y-Rhu, but barren. The crust of this plant consists of a number of thick, smooth, hard scales, here and there collected together, but more usually scattered, wavy, and rounded in the centre; in colour varying from a glaucous to a dark brown in an old state, and the younger ones white at the edges. It grows upon the perpendicular face of a limestone rock.

*L. rubra*. This is a very beautiful lichen and of rare occurrence. The only two habitats I know for it are upon the walls of Wigmore Castle in Herefordshire, and at Craig-y-Rhu in the parish of Oswestry. In both habitats the plant grows upon patches of decayed *Hypna* hanging loose from the stone.

*L. hamatomma*. Craigforda, Craig-y-Rhu, &c.

*Parmelia glomulifera*. Upon a wych-elm at Llanforda. There is only a single plant of this upon the tree in question, and it is at present the only English habitat I know for it. I have watched this plant for upwards of twenty years, and cannot perceive that it has either increased or decreased. It has glomeruli, but no apothecia; many of the *Parmeliæ* certainly seem to propagate themselves by buds or gonidia without apothecia. The shields of *scortea* and of *lanuginosa* are I believe yet a desideratum in English botany, and those of *proboscidea*, *perlata*, *Borreri* and others are very rare, even where the plant itself is not uncommon. I cannot but suspect from the above instance, that the apothecium is at all events the only mode by which this particular species is propagated. Dr. Taylor considers the glomeruli of the present plant as the only distinction between this and *herbacea*. I confess I cannot be of this opinion. Even Fries, so prone as he is to diminish species, though he removes both of these to the genus *Sticta*, and in which I think they may well be placed, still keeps them distinct. Dr. Taylor also considers that they would rank as well with the *Stictæ* as with the *Parmeliæ*. Both of them grow in great profusion in the wooded parts of Wales, often upon the same trees; but whether in a wet or dry state, they equally strike the eye as being distinct; but most so in a dry state, the smoky white colour of the thallus of the *glomulifera* contrasting with the brownish green of that of *herbacea*. It is also thicker and more leathery, and not so much wrinkled.

*P. herbacea*. Upon an old wych-elm on Bringewood Hill, opposite Downton Castle, in Herefordshire.

*P. caperata*. Craigforda and other places about Oswestry, but not common, and usually barren.

*P. conspersa*. Craigforda: not common. The var. *stenophylla* of Ach. grows upon the sandstone rocks there.

*P. Borreri*. Woodhill and Porkington, but with us always barren; this plant is scarce with us.

*Parmelia aquila*. Upon the north side of a small mass of sandstone rock on the southern slope of Mynydd-y-Myfyr. This may almost be called a maritime plant, being so commonly and abundantly found on maritime rocks, and scarcely met with elsewhere. The late Sir J. E. Smith told me however that he had met with this plant at Stonehenge, which is about thirty miles from the sea, in a direct line; we are about forty-five. In the great storm however of January 6th, a few years ago, our windows even at this distance from the sea were copiously incrustated with sea-salt, so that the seeds of a maritime lichen would be readily carried to us. The plants in question do not spread upon the adjoining stones, and which is perhaps singular, they occupy the face of the rock *from* the sea; upon the coast, as far as I have observed, they always face the sea.

*P. aleuritcs*. Not uncommon upon old pales: Hay Park near Ludlow, and Oteley Park near Ellesmere.

*P. ambigua*. In similar situations to the last, but very scarce in fruit; upon an old gate at Pentregaer.

*P. physodes*. Very finely in fruit upon the pales of the Hay Park and about the Moor Park near Ludlow.

*P. plumbea*. Upon ash-trees at Craig-y-Rhu, but barren.

*P. crassa*. Limestone rocks, Oswestry.

*P. hypnorum* (*Lecanora*). Hay Coppice, Herefordshire: scarce.

*P. erosa*. Upon the elm-trees in the walks at Ludlow Castle on the west side.

*P. cæsia*. Not uncommon, but usually barren. I have found it in fruit on the Moelydd.

*Sticta scrobiculata*. Hay Coppice, about the roots of old oaks in fruit.

*S. limbata*. Hay Coppice, on hazels.

*S. pulmonaria*. Ditto, and at Oswestry: not uncommon.

*S. sylvatica*. A single plant only of this has grown for many years upon a mass of rock in the Hay Coppice.

*Collema fragrans*. On trees at Llanforda and Pentregaer, but not common. It clothed nearly the whole inside of an old pollard-ash (now cut down), one half of which had been torn away, and the other half exposed to the weather. I could never detect any peculiar scent about it to entitle it to its specific name.

*C. ceranoides*. Upon a wall near the garden at Llanforda.

*C. multipartitum*. This is a beautiful plant, radiating from a centre upon flat masses of the limestone rock, the rounded appearance of the narrow segments of the thallus giving it an appearance as if made of minute cord; the centre soon decays, so that what is usually found of the plant are simply detached broad arcs of a circle. It grows both on the Moelydd and at Pentregaer:

*C. marginale*. Pentregaer.

*C. tunæforme*. Ditto: scarce. Mr. Borrer considers this to be the same as *dermatinum*.

<i>C. granulatum</i> .	} Pentregaer.
<i>C. dermatinum</i> .	
<i>C. sinuatum</i> .	



*Collema velutinum*, Ach. Upon ash-trees at Craig-y-Rhu. Dr. Taylor refers this to *nigrum*.

*Solorina saccata*. Wickliff Rocks, Ludlow : scarce.

*Peltidea venosa*. Ditto. Ditto.

*P. scutata*. On trees at Pentregaer, in fruit.

*P. horizontalis*. Wickliff Rocks, Ludlow, Craigforda, &c.

*P. aphthosa*. Craigforda, and woods at Downton Castle, Herefordshire.

*P. spuria*. Dry banks at Oswestry, but very scarce. I do not regard this as the same with *venosa*. If not a distinct species, I should consider it with Fries a state of *canina*. Though about the same size as *venosa*, the *spuria* is distinguished from it by not having the thick dark-coloured veins underneath which that plant has, and by the apothecia being smaller and narrower. In *venosa* they are of a roundish shape and flat, something like those of *horizontalis*, but of a dark colour like those of *scutata*. There is a *Peltidea* I have occasionally met with, which I believe is regarded, if it has been noticed at all, as the young state of *canina*; it is however of much less frequent occurrence than the *canina*, whilst the great difference in habit and appearance inclines me to believe it to be a distinct one. It is of an extremely thin and delicate texture, of a light bluish colour, and grows in an imbricated manner, forming cushion-shaped plants upon dry bare banks. The segments of the thallus are circular and inflexed, and the surface is copiously sprinkled by white soft sorediæ. It has much the habit and appearance of *Sticta limbata*. Though I would not undertake to affirm that it is not the young state of *canina*, I am inclined to think it is not. I am satisfied that a most patient and long-continued examination of particular plants in the same locality is required to enable us to clear up many difficulties which make the study of the Lichens so perplexing.

*P. polydactyla*. This is not so common as either *rufescens* or *canina*. I never saw it growing in such perfection as upon some heaps of burnt turf upon a common which had been left for two or three years before they were spread. I mention this because lichens are generally considered to be, and certainly are usually, of very slow growth, and yet here, where the turf on which they were growing had undergone the action of fire, the plants were of a larger size than usual, grew in the greatest profusion, and were copiously fringed with apothecia. Now even admitting that the original vegetation upon these heaps had not been destroyed by the fire, but that the plants in question escaped, still their unusual growth and luxuriance were unquestionably influenced by the alteration the soil had undergone. It has been supposed however that lichens derive their nourishment only through the media of air and light: "Typicus lichenum omnium proventus est in aëre et luce," says Fries. I cannot but think however that in the instance now mentioned, the rapid growth and luxuriance of the plants must have arisen from their deriving some nourishment through their roots, if the fibres attaching the thallus to the soil may be so considered. I have seen frequently an analogous case in the *Hepaticæ*, the old beds

where charcoal has been burnt in our woods being often carpeted over for many square feet with a luxuriant growth of *Marchantia polymorpha*. In both these instances, the carbonized soil has unquestionably exerted an influence upon the development of the plants. Liebig, in his 'Organic Chemistry,' p. 62, remarks upon the effects of charcoal in promoting the vegetation of plants, and attributes the effect to the charcoal supplying the roots of plants with an atmosphere of constantly renewed carbonic acid and air. I cannot but think that the two instances I have now adduced tend to show that it was through the fibres underneath the thallus that the carbonic acid reached the plants in question and affected their growth, and therefore that these fibres do in some degree supply the place of roots in conveying nourishment from the soil.

*Nephroma resupinata*. Upon rocks in woody situations : Craigforda, Craig-y-Rhu, &c.

*N. parilis*. In one instance in fruit at Craig-y-Rhu.

*Gyrophora polyphylla*. Mynydd-y-Myfyr : very scarce with us and in a dwarfish state.

*Umbilicaria pustulata*. Nesscliff, growing very finely upon the red sandstone rocks at that place.

*Cetraria sepincola*. Upon some old park pales at Oteley Park near the water.

*C. glauca*. Craigforda.

*Borrera furfuracea*. Mynydd-y-Myfyr, and pales of the Hay Park, Herefordshire, near Ludlow.

*Ramalina pollinaria*. Dorrington : not uncommon upon old barn doors ; grows also upon some elm-trees at the Lodge near Ludlow.

*Alectoria jubata*. Not common with us.

*Cornicularia aculeata*. Craigforda.

*Isidium coccodes*. Old oaks, Oswestry.

*I. microsticticum*. Rocks, Pentregaer.

*I. corallinum*. Craigforda, &c.

*Sphærophoron coralloides* and *compressum*. Ditto, and Mynydd-y-Myfyr.

*Stereocaulon denudatum*. Clee Hill and Mynydd-y-Myfyr, &c.

*S. nanum*. Upon walls at Sweeney.

*Cenomyce cæspititia*. Craigforda ; scarce. I have received it also from Mr. Leighton, I think from Haughmond Hill.

*C. sparassa*. Hay Coppice, Herefordshire.

*C. deformis*. Ditto.

*C. bellidiflora*. A barren state of this grows at Craigforda.

*Pycnothelia papillaria*. Barren : Craigforda. This is very scarce with us. I never met with it in such perfection as upon the common immediately above the house at Llandrindod Wells in Radnorshire.

#### Addendum to the List of Welsh Lichens.

*Parmelia stygia*. Llandegley Rocks, Radnorshire, upon the end of the range next to the village, and upon the side facing the east, Sept. 1844.